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ORIGINAL

**ENGINEERING STATEMENT**
**IN SUPPORT OF COMMENTS**
**CS DOCKET NO. 98-201**

1. This engineering statement has been prepared on behalf of the National Association of Broadcasters (NAB) in support of comments responding to the Notice of Proposed Rule Making in the matter of Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewing Act; Part 73 Definition and Measurement of Signals of Grade B Intensity, CS Docket No. 98-201. The statement is directed particularly to: the definition of "Grade B intensity", measurement methods and predictions of signal intensity (strength).

Definition of "Grade B Intensity"

2. Grade B field intensity, as specified in § 73.683[1], has served well, and continues to serve well, as a measure of the approximate threshold of that signal strength in the air permitting the viewer to receive acceptable picture and sound without resort to the use of specialized receiving equipment. Technical planning factors were applied to achieve that objective and, as noted by the Commission: "We have no evidence that the underlying technical planning factors have changed in a way that would justify revising the current Grade B intensity levels." (NPRM ¶ 27)

[1] 47 dBμ for channels 2-6, 56 dBμ for channels 7-13, and 64 dBμ for channels 14-69.

3. In fact, the available data confirm that there is no reason to change current Grade B intensity levels.

4. In the 1951 Third Notice of Proposed Rule Making[2], the FCC provided a derivation of signal strength levels for the prediction of Grade B coverage for rural areas and Grade A coverage for urban areas. Those signal strength levels were made final in 1952[3] when the temporary "freeze" was lifted and processing of television applications was resumed.

5. Verification of the Commission adoption of Grade B field strength as a measure of the field strength appropriate for the reception of an acceptable picture with an outdoor antenna and in the absence of urban noise was provided by the Television Allocations Study Organization (TASO).[4] TASO Panel 6 was charged with determining levels of picture quality. The Panel 6 report noted that "Nearly 200 observers were used, and about 38,000 individual assessments were made." (p. 449) The reported results of the tests conducted at the David Sarnoff Research Center of RCA at Princeton, New Jersey, showed in tests of random noise impairment that the median viewer found a picture with signal to interference ratio of

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[2] Third Notice of Further Proposed Rule Making; Docket Nos. 8736, 8975, 8976 and 9175; FCC 51-244; Adopted March 21, 1951, Released March 22, 1951; See, particularly, Appendix B.

[3] Sixth Report and Order; Docket Nos. 8736, 8975, 8976 and 9175; FCC 52-294. Adopted April 11, 1952, Released April 14, 1952.

[4] Engineering Aspects of Television Allocations, Report of the Television Allocations Study Organization to the Federal Communications Commission; March 16, 1959.

approximately 27.5 dB to be of acceptable quality and 70 percent of the viewers found a picture with signal to interference ratio of approximately 30 dB (the ratio employed by the FCC in its planning factors) to be of acceptable quality.

6. In 1977, Kalagian[5] reviewed the planning factors adopted for VHF channels in 1952. He concluded, based on the best available evidence, that the appropriate levels for Grade B coverage would be 44 dBμ for Zone I low VHF, 45 dBμ for Zone II or III low VHF, 54 dBμ for Zone I high VHF and 56 dBμ for Zone II or III high VHF. Kalagian used receiver noise figures of 6 dB for low VHF and 7 dB for high VHF as more appropriate for currently produced receivers than the 12 dB that the Commission had used in 1952. That conclusion was based on Hazeltine Research Report No. 3614, done under contract to PBS and filed as Exhibit 2 in Petition for Rule Making RM-2577, August 11, 1975.

7. Working Party 3 of the Planning Subcommittee of the Advisory Committee on an Advanced Television Service (ACATS) devoted substantial effort through an extended number of meetings and the preparation of a number of study papers to a determination of appropriate technical planning factors for the television service. The Working Party considered a variety of factors that might be argued to warrant increasing or decreasing the required signal strength. In 1994, Working Party 3 concluded that Grade B still constituted

[5] G. S. Kalagian; A Review of the Technical Planning Factors for VHF Television Service; Research & Standards Division, Office of Chief Engineer; FCC/OET RS 77-01; March 1, 1977.

the logical signal strength level for an acceptable (CCIR Grade 3) picture quality for the NTSC service.

8. Less than a year ago, in the digital television allocation proceeding, the Commission used the current Grade B intensity definition to determine the extent of NTSC service available to the public.[6] The purpose of that determination was to "ensure that broadcasters have the ability to reach the audiences they now serve and that viewers have access to the stations that they can now receive over the air."[7] In other words, the Commission used the existing Grade B intensity values to determine which viewers can actually watch particular television stations.

9. Field testing performed in 1994 to test the suitability of a system of digital transmission for the new generation of television broadcasting provides further support for continued use of the current Grade B intensity definition as a guide to the availability of acceptable reception. The field test was conducted in, and in the vicinity of Charlotte, North Carolina. The tests performed were part of a field test program conducted by the Field Testing Task Force under the Advisory Committee on Advanced Television Service of the

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[6] Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order; MM Docket No. 87-268; FCC 98-24; Adopted February 17, 1998, Released February 23, 1998.

[7] Sixth Report and Order, In RE Advanced Television Stations and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, FCC 97-115, ¶ 29, 12 FCC Rcd. 14588, 14605 (1997); see *id.* at 14630 (replication process "will preserve both viewers' access to the existing stations in the market and stations' access to their existing populations of viewers.")

Federal Communications Commission. Although the emphasis of the test was on digital transmission, an important aspect of the testing was a comparison of the digital transmissions with the NTSC analog broadcast system.

10. The Charlotte testing was designed to achieve statistically significant results. That objective was achieved by specifying that the pattern of locations for measurements and observations followed either grid configurations or even intervals along radial lines extending from the transmitter location. The sum of locations, including the grid intersections and even spacing along the radials, was approximately two hundred. Testing was conducted on both channel 6, a low-band VHF channel, and on channel 53, a UHF channel.

11. A team of three observers recorded picture quality, based on the CCIR five-point rating scale, with intermediate rating points, at each location after field strength at that location was measured. The recorded picture quality rating represented the consensus of the three observers made while looking at the receiver screen while at the site. Although recordings were made, they were strictly for archival purposes. No picture ratings were made based on those recordings.

12. Channel 6 observations of picture quality could not be used in an analysis of picture quality versus signal strength. The reduced power required to avoid interference to licensed co-channel and adjacent channel stations resulted in reception suffering from

interference from the operation of noncommercial FM stations operating nearby frequencies and from power line impulse interference.

13. The Channel 53 picture observations do not present the considerations that make the channel 6 data unsuitable for a picture quality versus signal strength analysis. Although the relationship of signal strength to picture quality was not an objective of the Charlotte study, the data are there for such an analysis. A statistical analysis of the data from channel 53 in the Charlotte study shows a very strong likelihood of a positive relationship between signal strength and picture quality and the applicability of Grade B as a measure of the presence of an acceptable picture quality. Among other things, in the overwhelming majority of cases (over 90%) in which signal strength was at or above Grade B intensity, the three neutral observers judged the resulting picture quality to be acceptable or better. When the ghost canceling feature of the receiver was activated, over 95% of locations with signal strength at or above Grade B intensity were judged by the three neutral observers to have acceptable or better picture quality.

14. Finally, the impact of raising dBu levels would be to reduce the protected service areas of all network stations. If the increase were as high as the NPRM suggests would be permissible -- almost to the Grade A level (see NPRM, ¶ 28) -- the impact would be extremely large. For example, of the PrimeTime 24 subscribers predicted by Longley-Rice to receive a signal of Grade B intensity or better from KGAN (CBS) in Cedar Rapids, Iowa,

63.5 percent would be transformed from ineligible to eligible if the required dBμ levels were raised to Grade A. For WOWK in Charleston-Huntington, West Virginia, the comparable level is 38 percent; for WRBL in Columbus, Georgia, the comparable level is 44 percent.

Measurement Methods

15. In its NPRM, the Commission states: "For the SHVA to function properly, a relatively low cost, accurate, and reproducible methodology for measuring the presence of a Grade B intensity signal in a household is of particular importance." (NPRM ¶ 37)

16. The use of the conventional 100-foot mobile run as specified in 47 C.F.R. § 73.686 is by far the most accurate way to determine the range of field strengths in the vicinity of a household. In the absence of an unusual topographic or man-made feature causing an abrupt discontinuity in the propagation path, the results of a 100-foot run are reflective of field strength levels likely to be prevalent within 500 feet or more of the path of the mobile measurements. The substantial cost of making such measurements is recognized to be a serious deterrent to their use; any alternative, however, must comply with a strict set of technical requirements if it is to be fair to all parties and appropriate as a way to determine whether a household "cannot" receive a signal of Grade B intensity.

17. A measurement of signal voltage at the input to a receiver in the household -- using the household's own uncalibrated, and potentially defective equipment -- is useless as an objective measure of the presence or absence of the existence of a grade B intensity signal above the household's rooftop. The same conclusion is applicable even more to a suggested

practice of judging the presence of a Grade B signal by observation of picture quality. To determine field strength, the gain and orientation of the antenna, the length and loss of the transmission line, the presence of correct impedance match from antenna to transmission line and from transmission line to meter, and calibration of the meter, must all be known quantities. If any element of the foregoing is unknown, the measurement is meaningless.

18. Orientation of the antenna for the strongest pickup is essential. The absence of such a requirement could, and likely would, lead to serious abuse. Orienting an antenna away from the signal being measured on the pretext that some other orientation is desired as a means of providing for the reception of other stations cannot be tolerated. Only by orienting the antenna for maximum signal strength can a reproducible result be obtained.

19. The Commission staff, upheld by the Commission itself, has recognized the importance of orienting a measuring antenna for maximum signal. In rejecting a set of measurements submitted by a Petitioner, the Chief of the Cable Services Bureau stated: "[I]t is unclear whether Potomac Ridge correctly oriented or positioned the equipment used to gather the data or whether it was positioned in a manner to receive the strongest signal possible (i.e., positioned to achieve maximum gain for each tested signal)."[8] In upholding the finding of the Chief, Cable Services Bureau, the Commission stated: "The Bureau's reference, in context, was to an aspect of the standard methodology for signal strength measurement,

[8] Memorandum Opinion and Order, Docket No. CSR 4915-O; 13 FCC Rcd. 4834; ¶ 20 (1997).

which requires that the test antenna be oriented so that it is most likely to measure the signal at its best available strength. The reference to the orientation of the testing antenna relates to the testing procedures for obtaining the most accurate *measurement* of a signal...." (footnote omitted, emphasis in original).[9] See also id. fn 43 ("th[e] requirement to orient towards the strongest possible signal guards against an improper signal strength test in which the antenna is oriented (intentionally or inadvertently) in the worst possible direction for receiving the signal, thus giving a misleading result.").

20. Notably, the issue in the Potomac Ridge matter was closely related to the issue here: signal strength at a particular household. The recognition in that highly analogous context of the need to orient the antenna properly is thus highly significant.[10]

21. Engineers retained on behalf of the satellite industry have likewise acknowledged the need to orient the antenna to obtain the strongest signal from the station being measured. A senior engineer at a consulting engineering firm retained by a major satellite carrier, for example, has specifically stated: "...I think it reasonable for [the station] to expect homeowners to orient their antennas properly." [11]

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[9] FCC 98-201, August 21, 1998, ¶ 16.

[10] Of course, unlike in the Potomac Ridge case, the statute here is explicitly conditioned on the signal strength available to an outdoor rooftop antenna. In the SHVA context, therefore, measurements in an attic would not be appropriate, although they may in some circumstances be sensible in the OTARD context.

[11] CBS Broadcasting Inc. *et al.* v. PrimeTime 24 Joint Venture; CIV-Nesbitt No. 96-3650; Notes submitted in deposition of R. Weller.

22. The particular equipment employed in any household for television reception is irrelevant. The statute specifies that an "unserved household" is one that "cannot receive, through the use of a conventional outdoor rooftop receiving antenna, an over-the-air signal of grade B intensity (as defined by the Federal Communications Commission) of a primary network station affiliated with that network..." If, for whatever reason, the householder has the need to receive television broadcast signals from diverse directions, rotors are readily available at reasonable cost.[12] Furthermore, if the signal from the antenna is split to serve multiple receivers or VCRs, an amplifier should be used to compensate for the splitter losses. Amplifiers also are readily available at reasonable cost.[13]

23. A measurement procedure that made eligibility depend on the vagaries of what direction a household claimed to prefer to orient its antenna, or on how many splitters a household claimed to use, would not be a valid method of determining whether the household "cannot" receive a signal of Grade B intensity.[14] Among other things, a household with a certain field intensity would be considered "served" one day and "unserved" the next, simply because the residents had bought a new television set and added another splitter (without

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[12] The current Radio Shack catalog lists a rotor for $64.99. Fifty feet of 3-conductor cable for the rotor control is list priced for $5.99.

[13] *Id.* Amplifiers are shown at prices ranging from $17.99 to $59.99.

[14] As to the effect of one or more splitters, any attempt to infer field strength above the household by taking a measurement at the output of a splitter would require subtracting whatever signal loss is entailed by having the splitter(s) in the circuit.

taking the sensible step of adding an amplifier to compensate). Similarly, neighbors with identical above-rooftop signal strength would be treated differently depending on what answers they gave about how they prefer to orient their antennas.

24. In lieu of the best method of measuring field strength - the 100-foot mobile run - a cluster method could be substituted as a relatively inexpensive method for measuring field strength in the vicinity of a household. Such a procedure was agreed to between broadcasters and two major satellite companies, Primestar and Netlink. The measurement should be conducted by a technician familiar with the use of signal strength meters of the type employed widely in the cable television industry. The opposing party (affected station or satellite carrier) should be notified well in advance of the measurement so that an observer could be present if desired. The antenna employed can be either a dipole adjusted to a length equal to the half wavelength of the signal being measured or an all-band antenna calibrated against a dipole. A balun is necessary to match the balanced output of the antenna to the unbalanced coaxial cable used to carry the signal from antenna to meter. The coaxial cable should be of a double-shielded type with characteristic impedance matching the input impedance of the meter. The meter should have been calibrated by the manufacturer or qualified test facility within one year prior to the measurements being undertaken.

25. Five measurements should be taken in the cluster located as close as feasible to the outside antenna on the household or, absent an outdoor antenna, as close as feasible to the most obvious location for mounting an outdoor antenna. That location is most often at a

chimney. From a central location for the first measurement, four additional measurements should be made at distances of ten feet or more from the central measuring location and from each other. Either of two standard test antenna heights, 20 feet or 30 feet, may be used depending on the height of the residence. Trying to duplicate the exact height of the outdoor antenna is unwarranted. Antenna height is difficult to estimate and would require a flexibility in the supporting mast that unnecessarily complicates the equipment needed for the procedure.

26. For the usual single story dwelling, the 20-foot height is likely to be appropriate. For a two or three story residence, the 30-foot height would be applicable. The supporting mast for the test antenna can be constructed of PVC piping, or of some other lightweight, non-metallic conduit or pipe. If in 10-foot sections, either two or three sections can be used as appropriate to achieve the desired height above ground. At each location, the test antenna must be rotated to find the orientation corresponding to maximum received field strength. The meter reading is to be made with the antenna so oriented.

27. To obtain the field strength in the air from the measurement of received power at the input to the field strength meter, a conversion is necessary. Power intercepted at the antenna is equal to power density of the field times effective antenna area. From the measured received power, the loss in the transmission line and balun must be added to determine the measured power intercepted by the antenna. Power density of the field is equal to the square of the field strength divided by the impedance of free space (377 ohms). Effective antenna

area is equal to antenna gain referenced to an isotropic antenna (2.15 dB greater than referenced to a dipole) times the square of the wavelength, divided by $4\pi$.

28. The median of the five measurements is that to be accepted as the measure of whether or not Grade B intensity is available at the rooftop. Since signal strength can vary over short distances, that measurement is not necessarily identical to what would obtain if the test antenna had been placed at the precise location occupied normally by the rooftop antenna. As a practical matter, however, replacement of the rooftop antenna by the test antenna, then reinstallation of the householder's antenna after the measurement, would be infeasible.

29. Multi-story apartment buildings may present special problems, although, in the event that the building is equipped with a master antenna, the procedure may be simplified. A single measurement in the near vicinity of the master antenna may be sufficient to judge the presence or absence of Grade B field intensity. If individual apartment antennas on the roof are used, a measurement near the apartment antenna would be sufficient. Where individual antennas are prohibited (in a manner consistent with FCC regulations) from being located on the roof, the measurement would have to be made on a balcony or wherever the dish itself is located. As with single-family dwellings, the test antenna must be oriented for maximum signal strength.

Predictions of Signal Intensity

30. The Commission proposes that "the Longley-Rice propagation model, as implemented for DTV, be used to refine the Grade B service predictions for the purpose of SHVA determinations." (NPRM ¶ 34) The standard model used by the Commission in the DTV proceeding is an excellent choice and should be used for prediction of which households are able to receive signals of Grade B intensity.

31. Geocoding of subscriber addresses for use with the Longley-Rice model works well. I have personally used the Centrus ACM program, a widely-used commercial geocoding program. I have confirmed its accuracy by using the geocoded coordinates in plotting specific addresses on USGS topographic maps and relating those plots to street maps with identification of addresses for city blocks.

32. Variations from the Longley-Rice program as implemented in the DTV proceeding should be avoided. As discussed below, Longley-Rice is an excellent predictor without modifications and no basis exists for believing that departures from the standard model would enhance the accuracy of the Longley-Rice predictions.

33. As to buildings in particular, the fact that the Longley-Rice program as used normally does not expressly take buildings and vegetation into account does not impair the usefulness of Longley-Rice predictions for the purposes of determining whether households are likely to receive a signal of Grade B intensity. Large concentrations of buildings are located in cities, and the transmitters of television stations are designed to provide signals of

much greater than Grade B intensity in cities. Even if urban clutter resulted in some loss of signal strength, the signals are so strong that they remain far above the Grade B threshold.

34. Empirical testing confirms the accuracy of the standard Longley-Rice model in predicting which households are able to receive signals of Grade B intensity. I have supervised the taking of signal intensity measurements at the locations of more than 500 households that subscribed to satellite-delivered network programming. These households were selected randomly from lists provided by PrimeTime 24.

35. I have calculated the success rates of Longley-Rice -- and of the PrimeTime 24 "do you get an acceptable picture" approach -- in predicting the signal intensity results obtained in our field tests. I have credited Longley-Rice with a successful prediction under the following circumstances:

(a) correct prediction of Grade B signal: the household was predicted to receive a median signal of at least Grade B intensity from one or more stations of the relevant network, and was actually measured to receive a median signal of at least Grade B intensity from at least one of those stations;

(b) correct prediction of no Grade B signal: the household was predicted not to receive a median signal of Grade B intensity from any station of the relevant network, and was measured to receive median signals of less than Grade B intensity from the relevant stations; and

(c) under-prediction: the household was predicted not to receive a median signal of Grade B intensity from any station of the relevant network, but was measured to receive at least a median Grade B signal. In this situation, Longley-Rice has under-predicted the signal strength at the household, thus making the household eligible in the first instance to receive an imported station by satellite. The under-prediction in Longley-Rice in these cases thus works to the disadvantage of the local station, not of the satellite program provider.

36. I have credited the PrimeTime 24 "do you get an acceptable picture" method with a correct prediction if the household was measured to be unable to receive a median signal of Grade B intensity from any station of the relevant network.

37. The table below sets forth the results of these calculations.

**TABLE 1**

| TELEVISION MARKET AND STATION(S) | LONGLEY-RICE SUCCESS RATE | PRIMETIME 24 "ACCEPTABLE PICTURE" SUCCESS RATE |
|---|---|---|
| Miami (CBS, Fox) (Ch. 4, 7) | 100% | 0% |
| Charlotte (CBS) (Ch. 3) | 99% | 2% |
| Baltimore (CBS) (Ch. 13) | 94% | 6% |
| Pittsburgh (Fox) (Ch.3) | 73% | 36% |

| | | |
|---|---|---|
| Raleigh / Durham (ABC) (Ch. 11) | 99% | 1% |

38. The use of nonstandard parameters for implementation of Longley-Rice would not be appropriate. First, in general, use of parameters greater than 90 percent in running Longley-Rice is improper. Empirical data that have been used in conjunction with theoretical formulae to define the field strength versus distance curves support the assumption of log normal, Gaussian, variability only within the approximate limits of 10 and 90 percent. Beyond those limits, data tend to depart from log normal distribution. At all frequencies, some anomalous propagation is to be expected for the regions at either end of the data distribution curve.

39. Second, the 99/99 parameters advocated by EchoStar would result in a tremendous amount of underprediction of which households are able to receive Grade B signals, when measured against actual test results. In Charlotte, North Carolina, for example, of 101 randomly selected subscribers tested, at least 37 (36.6%) would be incorrectly predicted to be unable to receive a Grade B intensity signal, even though they were measured to receive at least a Grade B intensity signal. Similarly, in Baltimore, of 106 randomly selected subscribers, at least 30 (28%) would be incorrectly predicted to be unable to receive a signal of Grade B intensity. In Raleigh/Durham, at least 36 out of 100 randomly selected households (36%) would be incorrectly predicted not to receive a signal of Grade B intensity. In short, adoption of a 99/99 mapping standard would be very poor science.

40. Even the data just cited do not capture fully the mischief that would be done by adoption of the EchoStar proposal. The data just cited are based on running Longley-Rice with 99 percent location and time probabilities, but without adding in any separate factor for "confidence." In my opinion, no reason exists for a heightened "confidence" factor beyond the conventional median when the location and time factors are so high. If a higher "confidence" factor were required, the level of underprediction would be still higher than shown above.

41. Furthermore, the data just cited do not include any "morphology" supplement. No generally accepted method is available for taking morphology into account. Any attempt to do so would increase still further the amount of underprediction.

42. Because the statute makes eligibility depend on the presence of "Grade B intensity," no need exists to incorporate adjustments for co-channel or adjacent-channel interference. Interference is not related to the intensity of the signal from the desired station, and hence is not relevant to whether a household is able to receive a signal of Grade B intensity. As a practical matter, areas of interference are minor. Where interference does in fact exist, and no alternate network sources are available, antenna adjustment can often provide the necessary discrimination to eliminate the interference.

43. In summary, the Commission's standard Longley-Rice model, as implemented in the DTV proceeding, is an excellent predictor of which households can in fact receive signals of Grade B intensity, as specified by the SHVA.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 10, 1998.

Jules Cohen, P.E.

**NATIONAL ASSOCIATION OF BROADCASTERS BOARD PRINCIPLES**

THE BOARD BELIEVES THAT ANY LEGISLATION DEALING WITH THE PROVISION OF LOCAL BROADCAST SIGNALS BY SATELLITE CARRIERS MUST ADHERE TO CERTAIN PRINCIPLES. ABSENT THESE KEY PROVISIONS, THE BOARD WILL OPPOSE SUCH LEGISLATIVE PROPOSALS. THESE PRINCIPLES SHALL INCLUDE THE FOLLOWING:

- FULL STATUTORY MUST CARRY OF ALL LOCAL TV BROADCAST SIGNALS, IF SATELLITE CARRIER ELECTS TO CARRY ANY LOCAL SIGNALS;

- RETRANSMISSION CONSENT, NETWORK NONDUPLICATION PROTECTION, SYNDICATED EXCLUSIVITY AND SPORTS BLACKOUT PROTECTIONS;

- OUR PARAMOUNT CONCERN IS TO PROTECT FREE OVER-THE-AIR BROADCASTING AND LOCALISM IN ANY FCC RULEMAKING WITH RESPECT TO UNSERVED HOUSEHOLDS.

THEREFORE, CONGRESS SHOULD INSIST THE FCC IN ITS RULEMAKING BE GUIDED BY THE FOLLOWING PRINCIPLES:

(1) USE OF THE SAME TERRAIN-SENSITIVE PREDICTION MODEL (LONGLEY-RICE) USED BY THE FCC IN DETERMINING ANALOG TV STATION COVERAGE AREAS IN ITS ALLOCATION OF DIGITAL CHANNELS;

(2) MODIFICATION OF PROTOCOL FOR MEASURING GRADE B INTENSITY TO ENSURE THAT MEASUREMENTS WILL REFLECT AVAILABLE SIGNAL INTENSITY;

(3) USE OF THE EXISTING FCC DEFINITION OF GRADE B INTENSITY; AND

(4) AN EFFECTIVE DATE NO LATER THAN FEBRUARY 28, 1999.

- COMPENSATION AS A SUBSTITUTE FOR MUST CARRY IS NOT AN ACCEPTABLE PROVISION;

- STATION BEARS THE COST OF DELIVERING A GOOD QUALITY SIGNAL TO A RECEPTION POINT IN THE LOCAL MARKET DESIGNATED BY THE CARRIER.

- IF LEGISLATION CONTAINS THE PROVISIONS SPECIFIED ABOVE, THEN THE BOARD SHALL CONSIDER A DELAYED IMPLEMENTATION OF FULL MUST CARRY UNTIL A SPECIFIC DATE IN THE FUTURE WITH AN INTERIM MUST CARRY LESS THAN THE CARRIAGE OF ALL LOCAL STATIONS IN THE MARKET.